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POST OPERATIVE LESS COMPLICATIONS IN ROBOTIC DONOR NEPHRECTOMY WITH MINIMAL HOSPITAL STAY

Urology

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ABSTRACT

Introduction: Minimally invasive surgical procedures have gained widespread acceptance in the field of living kidney donation over the last decade. Ratner et al. were the first to describe laparoscopic donor nephrectomy (LDN). Since then, compared to open donor nephrectomy, LDN has demonstrated several improvements in terms of decreased postoperative pain, decreased length of hospital stay (LOS), rapid patient rehabilitation, reduced postoperative blood loss, and superior cosmetic results.
Aims And Objective: The aim of this study is to study less complication in robotic Donor nephrectomy with Respect to clinical outcome which include pordoprade pain, time and minimal stay in hospital.
Materials And Methods: This study had been conducted on patients admitted for Robotic Donor Nephrectomy. This study done at Apollo Gleneagles Hospital, Kolkata. Prospective study was carried out in cases performed between which includes number of patients. All patients were older then 20years for this study.
Result And Analysis: It was found that 49 (96.1%) patients had under vein group1, and 2(3.9%) patient had under vein group 2. 43 (84.3%) patients had under artery group1, and 8(15.7%) patient had under artery group 2. 1(2.0%) patient had acute graft rejection. 41 (80.4%) patients had Left site, and 10(19.6%) patient had Right site.
Conclusion: Robotic donor Nephrotomy performed by the vinei Robot the use 7 Robot allows Minimum blood loss, Minimum OT time in their better result our study proven the ruperiority 7 then method and add then there were less complication. Pastopade pain Duration of hospital stay was less and return to regular life earlier so therefore Robot arrited Donor Nephrotomy is the method I choice for Renal tramplant Surgery.

KEYWORDS

Robotic Donor, Nephrectomy, Minimal Hospital Stay

INTRODUCTION

Minimally invasive surgical procedures have gained widespread acceptance in the field of living kidney donation over the last decade. Ratner et al. were the first to describe laparoscopic donor nephrectomy (LDN) [1]. Since then, compared to open donor nephrectomy, LDN has demonstrated several improvements in terms of decreased postoperative pain, decreased length of hospital stay (LOS), rapid patient rehabilitation, reduced postoperative blood loss, and superior cosmetic results [2,3]. LDN has become the gold standard procedure for living kidney donations. Several LDN modifications, hand-assisted laparoscopic (HALDN), single-port laparoscopic (LESS), and robot-assisted laparoscopic (RALDN), have improved the technique. RALDN was first reported by Horgan et al. in 2002 using a hand-assisted technique and was subsequently studied by Renoult et al. in 2006 [4,5]. These studies demonstrated that RALDN offered comparable advantages to the standard LDN, with seven degrees of freedom and three-dimensional (3D) surgical vision. With these robotic benefits and safety, we believe that RALDN could serve as a potential alternative to LDN.

In live donor nephrectomy, guaranteeing donor patient safety is most important, and every endeavor should be made to minimize procedural risks and improve donation safety. Robot-assisted surgery has increasingly been adopted as a surgical treatment option for various genitourinary system diseases, such as prostate and kidney cancer [6]. This robotic approach enables surgeons to safely perform complex vascular procedures. It has been regarded that in highly complex cases with three renal arteries or an additional lumbar vein, RALDN can be performed with less risk of accidents.

Living kidney transplantation provides a high rate of immediate allograft function, superior long-term patient and graft survival, shorter waiting time, and the possibility of preemptive transplantation compared to deceased kidney transplantation.

Open donor nephrectomies were used for nearly 50 years until the implementation of the laparoscope in 1997 by Ratner et al.[7] The laparoscopic approach for donor nephrectomy reduced blood loss, pain, and patient convalescence and improved aesthetic results. Nowadays, the laparoscopic approach is the most common method for performing donor nephrectomies, resulting in an increased acceptance of donor operations and consequent expansion of the donor pool.

In 2000, the US Food and Drug Administration approved the da Vinci Surgical System (Intuitive Surgical Inc.), a system that combines robotic techniques and computer imaging to enable microsurgery in a laparoscopic environment, for use in the United States. The da Vinci Surgical System's advantages include the precision and instinctive movements of open surgery, an optimal ergonomic environment for the surgeon, and a 3-dimensional (3-D) vision system that restores the hand-eye coordination lost in laparoscopic procedures.

In 2001, the University of Illinois at Chicago reported the first series of robotic-assisted laparoscopic donor nephrectomies.[8] Since then, the use of the da Vinci Surgical System has increased, and many centers have reported that the procedure is feasible and safe and provides excellent results with low morbidity compared to the laparoscopic approach.[9]

The aim of this study is to study less complication in robotic Donor nephrectomy with Respect to clinical outcome which include pordoprade pain, time and minimal stay in hospital.

MATERIALS AND METHODS

This study had been conducted on patients admitted for Robotic Donor Nephrectomy. This study done at Apollo Gleneagles Hospital, Kolkata. Prospective study was carried out in cases performed between Jan 2020 to Dec 2020 which includesnumber of patients. All patients were older then 20years for this study.

All patients were enrolled only once. Age, sex, intermittent High Abdominal pressure, persistent cough, constipation and factors that may interfere with wound healing, diabetic, use of steroids, smoking were noted. All patients were thoroughly examined. The site of donor cret and all investigations were done.

Factor Analysed In This Study

1. Age
2. Sex
3. Side
4. Risk factors
5. Operative procedure
6. Time taken
7. Post operative pain
8. Duration of Hospital stay
9. Complication
10. Check up at 7day, 1 month, 6th month, 12th month, 24th month for any

One hour before of a single dose of IV cefotaxime …. Salbaitin was administered after proper skin test. Patient underwent OT under general anesthesia. All patients were monitored with all the vitals.

RESULT AND DISCUSSION

In our study, 36 (70.6%) patients were 21-30 years of age, 12 (23.5%) patients were 31-40 years of age and 3(5.9%) patient were >41 years of age. 7 (13.7%) patients were Female, and 44(86.3%) patient were Male. The mean Age (mean± s.d.) of patient was 30.0784 ± 6.2573 years

It was found that 49 (96.1%) patients had under vein group1, and 2(3.9%) patient had under vein group 2. 43 (84.3%) patients had under artery group1, and 8(15.7%) patient had under artery group 2. 1(2.0%) patient had acute graft rejection. 41 (80.4%) patients had Left site, and 10(19.6%) patient had Right site.

Bhattu AS et al [10] (2015) conducted that VAS pain scores at 6, 24, and 48 hours (p = 0.00), analgesic requirement (p = 0.00), and hospital stay (p = 0.00) were less in RDN than in LDN. Longer graft arterial length could be preserved with robotic approach on right side (p = 0.03) but not on left side (p = 0.77). The RDN group required more number of ports (p = 0.00), longer retrieval time (p = 0.00), and warm ischemia time (WIT) (p = 0.01). Total operative time (p = 0.14), hemoglobin drop (p = 0.97), postoperative donor complications (p = 0.97), and the recipient estimated glomerular filtration rate at 9 months (p = 0.64) were similar in both groups. Difficulty scores of console surgeon were less in most steps on right side but not on left side. Patient-side surgeon in RDN had higher difficulty scores for retrieval. RDN is safe and is associated with better morbidity profile than LDN. Robotic approach provides technical ease and facilitates preservation of longer length of renal artery on right side. Left RDN is associated with longer WIT; however, this does not translate into poor graft outcome.

Siena G et al [11] (2019) conducted that Median (range) console time was 230 (190-200) minutes, vascular suture time was 58.7 (48-73) minutes, cold ischemia time was 46.2 (30-88) minutes, and rewarming time was 61.2 (55-72) minutes. No conversion was required. No major surgical intraoperative and postoperative early and late complications occurred. Mean glomerular filtration rate at days 1, 3, and 7 postoperatively was 26, 42, and 57 (range = 6-90) mL/min/1.73 m2, respectively. No case of delayed graft function was observed. No anastomosis revision, urological complications, lymphocele, and surgical site infection occurred. In their experience, RALDN and RAKT are safe and effective. The intuitiveness of the robotic approach provided substantial benefits both for the living donor and recipient from the very beginning of their series. No intraoperative and postoperative complications occurred.

Kawan F et al [12] (2018) showed that the use of robotic techniques in laparoscopic donor nephrectomy currently tends to involve a longer ischemia time without clear advantages, and the cost of robotic surgery is significantly higher. If only one robot is available, then unnecessary prolongation of cold ischemia time also occurs, as the donor must first be undocked to dock the recipient. The combination of laparoscopic donor nephrectomy with parallel initiation of robot-assisted situs preparation and exposure of the renal vessels appears to be the best current approach to safe and cost-effective donor nephrectomy and subsequent robot-assisted kidney transplantation without wasting any time.

We found that the mean OT time (mean± s.d.) of patient was 129.4510 ± 25.0713 mins. The mean Warm ischemia (mean± s.d.) of patient was 356.7059 ± 96.9625 sec. The mean vein (mean± s.d.) of patient was 1.0392 ± .1960. The mean artery (mean± s.d.) of patient was 1.1569 ± .3673.

Our study showed that the mean Hospital stay (mean± s.d.) of patient was 5.0000± .4899 days.

The mean Nadcret (mean± s.d.) of patient was 1.2860± .2688.

Leblanc L et al [13](2019) showed that recovery of graft function, complications and changes in creatinine clearance were observed in recipients. The mean operating time was 176 (±23) minutes. The mean warm ischemia time was 4.8 (±0.6) minutes. Twenty seven complications were noted. The loss of renal function was 19% at 5 years in donors. Renal recovery was immediate for 153 recipients. Two were delayed due to sepsis. Two patients lost their graft at 15 and 18 months. Seventeen complications have been identified. The mean kidney function of the recipients is measured at 63ml/min at 5 years. Robotic-assisted laparoscopic nephrectomy procedure appears to provide the donor with low morbidity and a moderate decrease in creatinine clearance at 19% at 5 years. Morbidity is also low in recipients with very satisfactory 5-year mean renal function. The technique should promote donation.

Spaggiari M et al [14] (2020) showed that median donor age was 35.7 (17.4) years, with a median BMI of 28.6 (7.7) kg/m. Nephrectomies were preferentially performed on the left side (95.2%). Multiple renal arteries were present in 24.1%. Median operative time was 159 (54) minutes, warm ischemia time 180 (90) seconds, estimated blood loss 50 (32) mL, and length of stay 3 (1) days. The median follow-up was 15 (28) months. Complications were reported in 216 patients (19.9%), of which 176 patients (81.5%) were minor (Clavien-Dindo class I and II). Duration of surgery, warm ischemia time, operative blood loss, conversion, and complication rates were not associated with increase in body mass index. RLDN is a safe technique and offers a reasonable alternative to conventional laparoscopic surgery, in particular in donors with higher body mass index and multiple arteries. It offers transplant surgeons a platform to develop skills in robotic-assisted surgery needed in the more advanced setting of minimal invasive recipient operations.

CONCLUSION

Robotic donor Nephrotomy performed by the vinei Robot the use 7 Robot allows Minimum blood loss, Minimum OT time in their better result our study proven the ruperiority 7 then method and add then there were less complication. Pastopade pain Duration of hospital stay was less and return to regular life earlier so therefore Robot arrited Donor Nephrotomy is the method I choice for Renal tramplant Surgery.

Table: Distribution of mean Age, OT time in min, Warm ischemia in sec, vein, artery, Hospital stay in Days and Nad cret

	Number	Mean	SD	Minimum	Maximum	Median
Age	51	30.0784	6.2573	21.0000	52.0000	28.0000
OT time in min	51	129.4510	25.0713	60.0000	180.0000	135.0000
Warm ischemia in sec	51	356.7059	96.9625	210.0000	660.0000	340.0000
vein	51	1.0392	.1960	1.0000	2.0000	1.0000
artery	51	1.1569	.3673	1.0000	2.0000	1.0000
Hospital stay in Days	51	5.0000	.4899	4.0000	8.0000	5.0000
Nad cret	50	1.2860	.2688	0.6000	1.9000	1.3000

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